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ABSTRACT

This report is designed to provide educators who are embarking on the Quality Performance Accreditation (QPA) process with an overview of assessment options, a discussion about the alignment of assessment and curriculum, and a compendium of resources for further investigation into the concept of student assessment. The QPA process recognizes that multiple assessments must be utilized in order to best measure student performance and that the assessment technique must be aligned with the curriculum. Attributes of sound assessments are listed. Types of assessments are discussed, including: criterion-referenced; alternative, authentic, performance-based assessments; portfolios; norm-referenced assessments; communications assessment; and mathematics assessment. A resources section describes a set of 10 videotapes developed by Rick Stiggins titled "Classroom Assessment Training Program." Appendixes contain a blueprint for designing performance-based assessments, worksheets for developing portfolios, Kansas communications outcomes, a description of the six-trait analytic model and a guide for rating student writing, and Kansas mathematics standards. (Contains 25 references.) (JDD)

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ASSESSMENT!

ASSESSMENT!

ASSESSMENT!

KANSAS
QUALITY PERFORMANCE ACCREDITATION
(QPA)

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January, 1992

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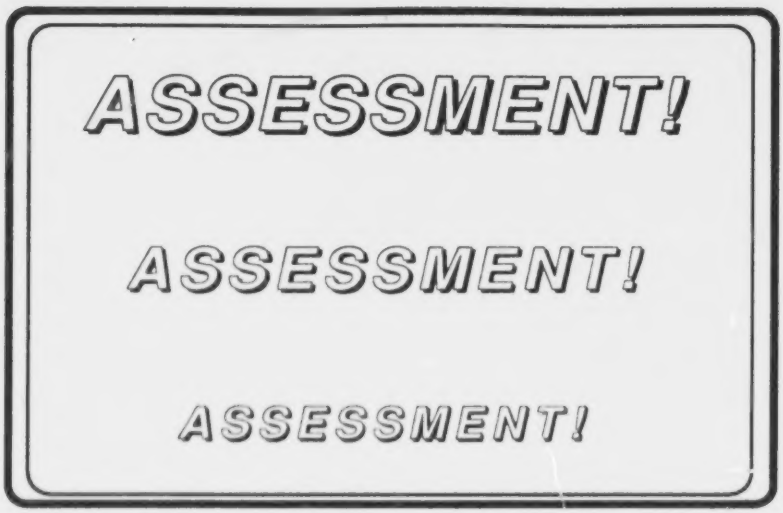

KANSAS
QUALITY PERFORMANCE ACCREDITATION
(QPA)

January, 1992

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INTRODUCTION

This publication, *Assessment! Assessment! Assessment!*, is designed to provide educators, embarking on the Quality Performance Accreditation (QPA) process, an overview of assessment options, a discussion about the alignment of assessment and curriculum, and a compendium of resources for further investigation into the concept of student assessment.

Since the mission for Kansas education is to prepare each person for the future, it is in our best interest as a state to equip our populace with the necessary skills to meet the demands of a global society. *Quality Performance Accreditation,* adopted by the Kansas State Board of Education, is one attempt to ensure that schools in Kansas focus their efforts on preparing young people to deal with the constantly changing and ever challenging world that awaits them.

QPA is a process which demands new thinking, new strategies, new behavior, and new beliefs. To accomplish this, the QPA process focuses on four areas:

- ◊ School improvement through effective school principles
- ◊ High standard of performance through an integrated curriculum
- ◊ Human resource development (staff training & retraining)
- ◊ Community-based outreach/learning community concept

Part of the new thinking required by QPA involves the interaction between these four areas and the concept of student assessment. It is imperative that a comprehensive assessment system of progress toward state and local outcomes be implemented. If the outcomes clearly define what it is we expect Kansas students to know and to be able to do as they leave Kansas schools, then the assessment tools used must match those outcomes.

The QPA process recognizes that multiple assessments, including norm-referenced, criterion-referenced, and performance-based assessments, must be utilized in order to best measure student performance. This does not mean that any one particular assessment tool should be abandoned but rather that our assessment options should be expanded.

SOUND ASSESSMENTS

ASSESSMENT

Assessment refers to the variety of methods and techniques used by educators to measure student knowledge, skills, and other traits. It is a process of gathering data and putting it into an interpretable form for making an evaluative judgment or a decision about a student, program or school. Traditionally, educators have determined whether students have met learning outcomes through the process of "testing". The concept of assessment should be viewed more broadly when measurement of student performance is based on outcomes. Assessment strategies could include the following: observations, portfolios, paper-and-pencil tests, oral questioning, projects, student records, demonstrations and performances.

Within the Quality Performance Accreditation (QPA) document are ten outcomes of which four specifically have indicators that refer to the use of multiple assessment techniques including criterion-referenced assessments aligned with the curriculum. There are two critical points within that statement: 1) no single assessment is sufficient for measuring student performance; and 2) the assessment technique must be aligned with the curriculum. An aligned curriculum is one in which the written outcomes, the instructional process and the assessment technique match.

About 99% of assessments in schools are designed and developed by teachers who spend thirty to fifty per cent of their time on assessment-related activities. Yet, few of these educators have little or any formal training in assessment. Many teachers do not know the multitude of assessment options that exist nor how to design them. Assessment options include paper-and-pencil, performance, and personal communications. Often teachers rely on the "tests" that accompany textbooks.

Most district-wide or school-wide assessments are determined and selected by boards of education and/or central office administration. Frequently, these assessments are designed and developed by publishing companies or commerical testing companies.

Assessments provide a wealth of information for teachers, students, parents, and others. Assessments impact decision-making, instruction,

control, evaluation, learning and interpersonal feelings. It is important that those assessments be sound. As the accountablilty movement focuses on student performance, proper design and use of assessments become imperative.

SOUND ASSESSMENTS

To have **sound assessments** the following attributes are critical:

- ◊ the **achievement target** must be clear and the **method** must be appropriate for assessing that target;
- ◊ the assessment must be a **representative sample** of student performance;
- ◊ **extraneous interferences** must be controlled; and
- ◊ the assessment must fit the **purpose**.

Richard Stiggins with the Northwest Regional Educational Laboratory (NWREL) has categorized **achievement targets** into five areas: knowledge, thinking, behaviors, products and affect. The key is to align the achievement target with the appropriate assessment method. As Stiggins says, "Students can hit any target that they can see and that holds still for them!" (Stiggins, 1991)

In addition to clearly identifying the achievement targets, the purpose for the assessment is also important in selecting an appropriate assessment method. Generally, the **purposes or uses** of assessment are the following:

- ◊ Teachers use it for decision-making, instruction and control.
- ◊ Students use it for decision-making, learning and interpersonal beliefs.
- ◊ Parents use it for evaluating teachers & schools, setting expectations, planning and rewards.
- ◊ Counselors use it for tracking students and planning.
- ◊ Principals use it for evaluating instructional effectiveness and programs and for planning curriculum.
- ◊ College admissions use it for selection and advanced placement.

"An assessment design must be constructed with an awareness not only of the general purpose(s) to be served, but also of the ways in which the information might be used to reach conclusions about both individuals and groups or organizations." A critical issue to consider: "Does the information collected represent an accurate estimate of worthwhile knowledge and mastery?" (Archbald, 1988) Assessments are used:

- ◊ To describe a person's performance relative to a comparison or norm group.
- ◊ To describe what the test taker knows or can do.
- ◊ To classify a person as knowing or not knowing enough or as able or unable to perform certain tasks.
- ◊ To make a decision about a person on the basis of classifications.

CRITERIA FOR EVALUATING ASSESSMENT SYSTEMS

Assessment is a concern not only of Kansas educators but others throughout the nation. The National Forum on Assessment with the endorsement of fifty professional groups and organizations released eight **criteria** for evaluating student assessment systems:

- ◊ Before new assessments are developed, student achievement standards should be defined.
- ◊ Main purpose of assessment should be to help improve teaching and learning and to measure students' progress.
- ◊ Assessment standards, procedures, tasks and uses should be fair to all students.
- ◊ The assessments' tasks should reflect the standards that students are expected to meet.
- ◊ Results of assessments should be reported in the context of relevant information such as curricula, class sizes, outcomes and pupil expenditures.
- ◊ Teachers should be involved in designing and using the assessment system.

- ◊ Assessment procedures and results should be understandable to the public.

- ◊ Assessment system should be subject to continuous review and improvement.

ALIGNMENT

Kansas schools and communities are defining what they expect students to know and to be able to do as they exit Kansas schools. **If the outcomes are clearly defined, then the assessment tools used must ma those outcomes.** It is imperative that the outcomes be the point aroun which curriculum, instruction and assessment evolve. Thus, alignment becomes a critical, on-going component of the educational process. Alignment refers to the agreement or match that exists among the learner outcomes, curriculum, instruction and assessment.

Alignment assures that the relationship of the outcomes (the written curriculum) to the instruction (what is taught) and to the assessment (what is evaluated) match. Student achievement rises, the closer the alignment is between instruction and assessment and between curriculum and assessment. If alignment is not an on-going component, teachers may not be teaching what is being assessed. They might not be assessing what is being taught.

When designing an assessment, two critical areas must be considered: content and context. The content is the "what". Does the content of the assessment match with the content of the curriculum? The context is the format or the "how". Is the format of the assessment compatible with how the curriculum was taught? There are **four key alignment questions** to be answered when designing assessments:

- ◊ Do we teach what is to be assessed?

- ◊ Do we teach it in the way it is to be assessed?

- ◊ Do we teach it before we assess it?

- ◊ Do we teach enough to ensure mastery?

CRITERION-REFERENCED

ASSESSMENTS

CRITERION-REFERENCED ASSESSMENTS

Criterion-referenced assessments (CRAs) measure whether or not a student has mastered specific learning objectives. Students' performances are not compared with the achievement of others as with norm-referenced tests (NRTs).

Traditionally, when criterion-referenced tests (CRTs) are mentioned, one thinks of paper-and-pencil, multiple choice tests. Criterion-referenced tests are not limited to just paper-and-pencil, multiple choice tests. To help people realize this, the term criterion-referenced assessment or CRA is used.

Today, there is much discussion about developing alternative assessment methods. These assessments are actually forms of criterion-referenced assessments; however, they are not called "CRAs" or "CRTs".

Criterion-referenced assessments are vehicles for making inferences about how much students know at one or more points of time. In order to make such inferences, the following must be in place:

- ◊ A **clearly defined curriculum** consisting of essential skil and concepts
- ◊ Specific **outcomes** corresponding to the skills/concepts in the curriculum
- ◊ A **representative sample** of student performance for each outcome
- ◊ A **standard of proficiency** for each outcome

Criterion-referenced assessments allow for the tracking of a student's accomplishment of individual learning outcomes and objectives. The assessment items relate directly to the outcomes and objectives of the instructional program and are more sensitive to changes in teaching methodology. Alignment of the assessment with the curriculum and instruction is important to measure precisely what was taught.

USES OF CRAs

Criterion-referenced assessments may be used:

- ◊ To determine if a student is mastering the curriculum
- ◊ To identify areas where a student needs remediation
- ◊ To determine if a student has attained an established level of competence so he or she might move to the next level of instruction
- ◊ For advanced placement

DIFFERENCES BETWEEN CRAs & NRTs

Both norm-referenced tests (NRTs) and criterion-referenced assessments (CRAs) may be paper-and-pencil tests; however, there are distinct differences between them. Whereas NRTs reference a student's performance to a norming group, CRAs reference to a defined set of criteria. Whereas NRTs measure a more general category of student competencies or knowledge, CRAs focus on a more specific domain. NRTs use a wide range of different test items to sample a general field. CRAs do not assess comprehensive mastery of a field, but rather subskills within that field.

TEST-ITEM BANKS

Some textbook publishers provide paper-and-pencil CRAs with their textbooks. Frequently, criterion-referenced assessments are teacher-made; however, a few commercially produced test-item banks such as Assurance and AIMS are available for purchase. The company provides objectives and the district or teacher selects the particular objectives and test items to use. The district might take the test items and rewrite or edit them to match the district's curriculum. Commercially produced test item banks are available in a variety of subjects and at multiple grade levels.

In addition to the high dollar expense, there are some perils in purchasing commercial test-item banks. The rigor of the match between the test-item bank's descriptors and items could be insufficient for instructional decision-making. Some of the banks are not necessarily criterion-referenced. In addition, some items are poorly written and often the items do not fit the curriculum outcomes of the school.

Major Components of a Criterion-Referenced Assessment Program

Test Development:

- ◊ Develop outcomes, goals and objectives for the curriculum
- ◊ Construct test-item specifications
- ◊ Generate test-item banks
- ◊ Field test and edit items
- ◊ Conduct test-item analysis

Data Analysis/Communication

- ◊ Perform reliability assessment
- ◊ Prepare data printouts for teachers & administrators
- ◊ Prepare summary reports for appropriate publics

Test Administration

- ◊ Establish standard conditions for test administration
- ◊ Maintain test security

Organizational Development

- ◊ Create an organizational climate favorable to testing
- ◊ Define the relationship between testing and accountability

Instructional Design

- ◊ Task analyze each tested objective
- ◊ Develop or assemble instructional materials for each objective
- ◊ Provide instructional support/assistance to teachers

ALTERNATIVE ASSESSMENTS,

AUTHENTIC ASSESSMENTS,

PERFORMANCE-BASED ASSESSMENTS

ALTERNATIVE or AUTHENTIC or PERFORMANCE-BASED ASSESSMENTS

Alternative assessments are also called authentic, performance or performance-based assessments. In this publication, they are referred to as performance-based assessments. These assessments require students to demonstrate what they know, what they can do, and what they were taught, rather than just choosing the right answer written by someone else. Performance-based assessments have students demonstrate specific skills and competencies rather than select one predetermined answer.

Performance-based assessments are "forms of student work that reflect real-life situations and challenge students' abilities to test what they have learned in those situations." (Archbald, 1988) They are task-oriented and parallel real life. They are also criterion-referenced assessments although people frequently think of paper-and-pencil, matching tests as the only format for criterion-referenced assessments. Performance-based assessments are based on direct observation and judgment.

The **goal** of performance-based assessment is to assess not only what a student knows but also whether the student uses his or her knowledge and skills appropriately. Process is a critical part of the assessment.

Richard Stiggins with the Northwest Regional Education Laboratory (NWREL) defines performance-based assessments as having four **components**:

- ◊ A reason for the assessment
- ◊ A specific performance to be evaluated
- ◊ Tasks or exercises that elicit that performance
- ◊ Systematic rating procedures

Performance-based assessments measure and promote a **broad range of skills** including basic skills, higher order thinking (such as analyzing

problems, orchestrating skills and generating ideas), and workplace-related skills. Therefore, these assessments may often need an extended time frame for completion. They lend themselves to any and all content areas and all grade levels. They facilitate improvement in instruction and learning. Some districts are using them as a means of "exiting" from a course or school.

Performance-based assessments have three basic **elements** in their design:

- ◊ Context (what is being evaluated)
- ◊ Criteria (how it is to be evaluated)
- ◊ Assessment method (what format or task is to be done)

TYPES OF PERFORMANCE-BASED ASSESSMENTS:

Portfolios: "A portfolio is a purposeful collection of student work that exhibits to the student (and/or others) the student's efforts, progress or achievement in (a) given area(s). This collection must include:

- ◊ Student participation in selection of portfolio content;
- ◊ The criteria for selection;
- ◊ The criteria for judging merit; and
- ◊ Evidence of student self-reflection." (Arter,1990)

The benefit of portfolios is that students are involved in reviewing and making judgments about their own work. It also helps students and teachers to assess the learning process.

Group Projects: Teamwork skills and the ability to work with others are increasingly recognized as essential workplace skills. Group projects require several students to work cooperatively. Assessment in this context looks at both the product and how individuals worked within the group.

Open-Ended Questions: This type of assessment provides students the opportunities "to construct their own responses, to reach solutions

through different methods, to address situations where there are multiple answers, and to demonstrate their depth of understanding of a problem." (Assessing, 1991)

Interviews: Initial interviews are critical elements of effective assessment systems in that they provide essential opportunities for students and teachers to discuss perceived strengths and needs as well as interests and goals. As an on-going assessment process, interviews provide a regular opportunity for reviewing progress, for recognizing achievements and for setting new goals.

Other formats of performance-based assessments include: demonstrations, exhibitions, direct writing, science fairs, work samples, simulations, process evaluations, music competitions and product evaluations.

STRENGTHS

Performance-based assessments have several strengths:

- ◊ They examine what a person can do and not just what they know. They reflect real life experiences.
- ◊ These assessments focus on developing higher-order thinking skills.
- ◊ The learner is at the center of the assessment process as he or she is an active participant in the assessment process.
- ◊ Performance-based assessments have the potential to be more accurate than norm-referenced assessments.
- ◊ Performance-based assessments often require some collaboration with other learners and teachers. They include process as well as content.
- ◊ These assessments tend to motivate students.
- ◊ Performance-based assessments facilitate improvement of instruction and learning.

Successful performance-based assessments depend on defining the specific skills to be observed and establishing the criteria for evaluation. This provides a high degree of consistency and reliability in the judgments of those assessments.

CONCERNS

Some concerns about developing and implementing performance-based assessments include the following:

- ◊ These assessments are labor intensive and have relatively high costs.

- ◊ The results are difficult to translate into state and national reporting requirements and for comparing across institutions.

- ◊ Performance-based assessments involve individual judgment that is not entirely objective. This may be minimized by establishing criteria, using multiple raters and extensive training.

- ◊ These assessments require the explicit specification of goals, objectives and criteria.

IMPLICATIONS

The use of performance-based assessments has several implications. What the assessments are asking students to know and do requires that the ways students are taught must change; therefore, instructional strategies must change. Assessment is not a stand-alone process. Students will become more actively involved in the design of the assessment and the evaluation of their own performance. Consequently, there is a critical need for staff development to support the new instructional strategies as well as the design and implementation of performance-based assessments. Developing and implementing this system of assessment can involve extraordinary costs: teacher training, assessment development, increased time and effort. The issue of cost needs to be considered in relation to the issue of quality.

PORTFOLIOS

PORTFOLIO ASSESSMENT

The Northwest Regional Educational Laboratory (NWREL) and the Northwest Evaluation Association (NWEA) have done extensive work in the area of portfolio assessments. Since a major concern of theirs is helping teachers develop and use sound, quality assessments, they graciously allow the use and adaptation of their materials. A special thanks is extended to them for the use of the following information.

For many people a portfolio is just a folder for collecting a student's work in areas such as art and/or writing. With the growing interest, however, in finding alternative assessment methods to evaluate student performance, it becomes clear that portfolios are a valid means for instructing students and for assessing their performance in all content areas.

The NWEA has developed a good, working definition of portfolio: "A portfolio is a purposeful collection of student work that exhibits to the student (and/or others) the student's efforts, progress or achievement in (a) given area(s). This collection must include:

- ◊ student participation in selection of portfolio content;
- ◊ the criteria for selection;
- ◊ the criteria for judging merit; and
- ◊ evidence of student self-reflection." (Arter, 1990)

"The definition of a portfolio includes assessment as an integral part of instruction; one cannot assemble a portfolio without clearly defined targets (criteria) and use of these criteria in a systematic way to paint a picture of student efforts, growth, and achievement. This is the essence of assessment." (Arter & Spandel, 1991)

ASSEMBLING PORTFOLIOS

Assembling portfolios has the potential to encourage critical thinking, problem solving, and thinking independently. Portfolios become a means for integrating instruction and assessment.

A portfolio is not just a folder in which to hold a student's work. A portfolio contains a variety of a student's work for a particular **purpose**. If the purpose is to show progress over time, then "best" work over time

would be included. If the purpose is to show how students go about conducting a project, then all activities, drafts, etc. would be included. If the purpose is for instruction, then all drafts would be included.
In addition to using portfolio systems for instruction and assessment and communicating with parents, other purposes include college admission, celebration of what has been accomplished, providing information to the next teacher, grading and high school credit.

Since portfolios take on differing formats, it is important that teachers decide what it is they are trying to assess before they decide what should be included in a portfolio. Is the portfolio for showing progress or for evaluating best work?

Portfolios usually include **student self-evaluation or self-reflection**; therefore, the student becomes actively involved in the assessment process. The self-reflection gives a rationale for why a particular piece is included. Students need to be instructed in how to reflect on their work.

Often the student controls which pieces of work are included in the portfolio. Frequently, this selection is done in collaboration with the teacher. In other situations, an indicator system might be used. An indicator system is a listing of items that are required to be collected by each student as part of his or her portfolio. The criteria or guidelines for selection of what should be included may vary from being extremely structured to completely unstructured.

A critical component of any portfolio system is the **criteria for judgir** merit. Whatever criteria are used should be fully and carefully defined and made known to all students. Clear criteria show students what is valued in their performance and clarify expectations.

ADVANTAGES OF PORTFOLIOS

Portfolios provide educators with a clear and complete profile and a record of changes over time. They go beyond factual knowledge and reflect the life-long nature of learning. There is a high potential for matching and integrating instructional goals and methods with assessment. Portfolios also communicate what is valued.

Students develop a greater awareness of themselves as learners. They become actively involved in setting goals, evaluating progress, and planning. Portfolios allow for the diversity of learning styles that students possess. There are multiple opportunities for students to show what they know and what they can do. Portfolios can help a student improve his or her self-concept. Portfolios allow for time to learn, change, grow and re-try.

POTENTIAL PROBLEMS

Portfolio systems must be designed carefully so that accurate and useful conclusions about what the portfolio shows may be drawn. There are certain potential problems with portfolios:

- ◊ The work may not be representative of what the student knows and can do.
- ◊ The criteria for judging merit might not reflect the most relevant or useful dimensions of the task.
- ◊ The pieces selected might not provide an "authentic" view of what a student knows or can do.
- ◊ There might be differences in interpretations depending on who is doing the analysis.

If one takes into account the potential problems and admits what can and cannot be provided by a portfolio, then the portfolio system is one more valid technique for looking at student performance.

DESIGNING PORTFOLIOS -- ISSUES

Judy Arter and Vicki Spandel (1991) with the Northwest Regional Educational Laboratory have compiled a series of questions and issues one should consider when designing a portfolio system.

The first issue relates to **design responsibilities**. Deciding who shou design the portfolio system involves asking: 1) Who will be involved in the planning? 2) Who will have primary control over the decisions to be made? and 3) What leeway will there be for experimentation?

The second issue is deciding what the **purpose** of the portfolio is. Is the purpose for showing growth or change over time? Is it for showing the

process by which work is done? Is it for creating collections of favorite or personally important work? Is it for tracing the evolution of one or more projects or products? Is it for preparing a sample of best work for employment or college admission? Is it for documenting achievement for alternative credit for coursework? Is it for placing students in the most appropriate course? Is it for communicating with a student's future teacher? Is it for reviewing curriculum or instruction? Is it for large-scale assessment?

Once the purpose is determined, one should then consider the **relationship between curriculum, instruction and the portfo** What is the curricular focus? Is it math, language arts, science, fine arts, writing, social science, science or other? What are the major instructional goals for this program? How will portfolios be used for classroom instruction and assessment in the system being designed?

Another issue to be addressed is deciding **what work** goes in the portfolio. Are certain items required? Are some items optional? What guidelines for selecting work will be used?

In conjunction with the content of the portfolio, one must also determine **who will select** the specific work that is included. Is it the student? teacher? student and teacher? other? Who owns the portfolio? Who will have access to the portfolio?

Establishing the **criteria** for assessing portfolio entries is another issue What are the criteria? Who develops them? Should there be criteria for assessing the portfolio as a whole?

The final issue relates to **staff development**. What types of training will teachers and administrators need to develop and implement portfolios?

There is no one right way to design portfolios. The design will vary depending on the audience, purpose, and context. Portfolios are a useful tool for both instruction and assessment when done properly.

NORM-REFERENCED

ASSESSMENTS

NORM-REFERENCED STANDARDIZED TESTS

UNDERSTANDING TERMS

Norm-referenced standardized tests (NRTs) usually refer to commercially produced tests such as the ITBS (Iowa Test of Basic Skills) which is generally given once a year. With these tests, students' scores reflect how an individual student does **in comparison to the norming group** students who took the assessment.

Unless a specific test can over time measure consistently what it was intended to measure, little faith can be put into the test outcomes. Therefore, when discussing norm-referenced tests (NRTs), it is important to define a few terms. The first of these terms is **reliability** which indicates whether or not a specific test, or an equivalent form, when administered on different occasions, brings forth the same test results. If the test is reliable, then the same or comparable results will be obtained.

A second term is **validity**. This parallels reliability, but focuses specifically on the issue of whether the test is really measuring what it was designed to measure in the first place. In other words, if a test is used to measure higher order thinking skills, then it should measure just that, and not anything else. If a test is not valid, then one cannot give any meaning to the results.

In norm-referenced standardized testing, both the reliability and validity of the test are ascertained by test developers through the use of various **norm groups**. When one compares a person's score to the scores of other people within the same setting, a norm group is being used. For each norm referenced test, various norm groups have been formed, and for each norm group the reliability and validity of the test have been established. This is a never-ending process. Continual updates need to be made to maintain the reliability and validity of NRTs, with particular consideration to the norm group for changes within the societal context.

According to Frederick Brown (1976), **standardization** is the process of developing controls for errors within a test or procedure which in turn would minimize the influence of anything that is not pertinent to the

test. When talking about standardized tests, one is talking about tests which have been and are standardized in terms of content and administration. Content means all items or equivalent items of the test have been administered to the norm group. Administration refers to the test being given to all subjects under the same conditions. By this, one means using the exact instructions, same scoring method, and specified time limits for the test.

WHAT ARE NRTs?

Norm-referenced standardized test (NRTs) are tests in which a **student's performance is compared to that of other students** have taken the same or equivalent test using the same set of instructions and time limitations. Some norm-referenced standardized tests are the Iowa Test of Basic Skills (ITBS), Comprehensive Test of Basic Skills (CTBS), California Achievement Test (CAT), Scholastic Aptitude Test (SAT) and minimum competency tests.

Many districts use these tests for placement in programs such as Chapter I and gifted. They are also used for assessing proficiency in basic skills. These assessments are generally given in the areas of math, language arts, reading, social science, and science. Often NRT scores are reported by the media. They lend themselves well to simple comparisons between students, schools, districts, states and nations. Unless a district has aligned its curriculum with the test, the test is an inappropriate measure of curriculum.

CONCERNS OR SHORTCOMINGS

Norm-referenced tests represent only about one percent of the time spent on assessment. Yet they promote over a $900 million industry per year. Other critical shortcomings of traditional, norm-referenced tests include the following:

- ◊ They provide little indication of a student's ability to apply his or her skills in different situations and to solve problems. They are imperfect measures of ability.

- ◊ These tests tend to focus on the simpler, more easily tested skills rather than the higher order thinking and more complex skills. The ability to "put it all together" is rarely measured.

- ◊ Many factors which are irrelevant to the skills being measured may impact on the results.

- ◊ "More often than not, assessment is something done *to*, rather than *with* the learner." Motivating students is limited with this type of assessment. (*Assessing*, 1991)

The way the test is used will provide either positive or negative results. Many NRTs are seen as inefficient because:

- ◊ they are used inappropriately;
- ◊ results and interpretations are reported incorrectly;
- ◊ they are the only form of test used to validate a decision;
- ◊ the wrong test is used for a specific situation;
- ◊ some believe that the test measured everything possible;
- ◊ we rely too heavily on a specific test to measure "X" when in actuality it measures something else.

In addition, some complain that NRTs are biased in terms of culture, race and gender. There have also been numerous cries of "teaching to the test."

According to the National Commission on Testing and Public Policy in its publication, *From Gatekeeper to Gateway: Transforming Testing in America*, "Test scores are at best only an estimate of what someone actually knows or can do." Many factors which are irrelevant to what the test is measuring may influence scores:

- ◊ Test anxiety
- ◊ Test sophistication
- ◊ Test-taking habits
- ◊ Attitudes toward tests
- ◊ Test directions
- ◊ Noise level of the testing environment
- ◊ Language of the test
- ◊ Native language of the test taker
- ◊ Cultural background of the test taker
- ◊ Special coaching
- ◊ Not eating breakfast

STRENGTHS OF NRTs

Although the usefulness of norm-referenced tests has been seriously questioned, they still provide very useful information and should be looked at carefully in schools. Chrispeels and Meaney (1985) provide three good reasons why standardized test results should be given careful consideration:

- ◊ Student achievement on standardized tests generally predicts achievement for succeeding years, and gains and deficits in standardized tests tend to have a cumulative effect when viewed across a number of years.

- ◊ Test scores in the public's eyes are viewed as an important measure of a school's effectiveness and are used by the public to support or deny support for schools.

- ◊ Schools achieving above expectations on standardized tests also tend to succeed in other important areas, such as attendance, student self-concept and participation, lack of student disruption and vandalism, and low incidence of delinquent behavior in the community.

Not only should standardized tests be taken seriously for the preceding reasons, but also because there is good and useful information that such tests can provide educators. For example, the Comprehensive Test of Basic Skills lists six specific diagnostic types of information that can be provided to educators via standardized tests. Those are:

- ◊ measurements of basic academic skills in reading, spelling, language, mathematics, study skills, science, and social studies;

- ◊ information on student progress relative to a national or a local norm group;

- ◊ diagnostic information for identifying strengths and instructional needs of individual students;

- ◊ diagnostic information for planning instruction;

- ◊ group and summary information and other types of progress reports for evaluating programs; and

- ◊ diagnostic information that, when coupled with other indicators, can aid in the development of building-wide goals.

Norm-referenced tests are also easy to administer and score. They are relatively inexpensive and efficient. They are impartial and the scoring is fair and objective. NRTs are useful as benchmarks for comparison across groups.

REPORTING NRT RESULTS

The **purpose** of norm-referenced standardized tests is **to rank students**. The tests are constructed so that a **normal curve distribution of scores** will result. The normal curve is a graphic depiction of the results of the test as well as the frequencies with which certain scores are obtained.

The normal curve is divided into parts. The midpoint of the curve is referred to as the **mean** (in a perfectly symmetrical normal curve distribution, the mean, median, and mode will be the same). The curve, on either side of the mean, is divided into three parts. The limits of these parts is demarcated by points called **standard deviations.** The size of the standard deviations will, theoretically, be equal for a particular distribution thus giving us a perfectly symmetrical distribution of scores, divided into nice and simple parts. The standard deviation marking to the right of the mean are designated as positive, while to the left they are designated as negative. The middle two sections of the distribution, from -1.0 to +1.0, contain the majority of the scores (approximately 68%) with the remainder spreading out to either end.

There are **five common ways** in which standardized test results are reported: grade equivalent, quartiles, stanines, percentile ranks and normal curve equivalents.

GRADE EQUIVALENT SCORES

Grade equivalents (GrE) are derived from including students in the norming population who are several grades above and below the grade level for whom the test was designed. For example, a 5th grade math test is given to grades 3, 4, 5, 6 and 7. The fifth grade student is compared to 7th grade as well as to 5th grade. If the 5th grader has a GrE of 7.2 on the math test, his or her score is the same as the average 7th grader. It does not mean that the 5th grader is doing 7th grade math.

Some **characteristics** of GrEs are the following:

- ◊ Grade equivalents range from 0 to 12.9.
- ◊ The grade equivalent of 7.2 described above does not mean the student had mastered all the math taught during the first two months of grade seven.
- ◊ Grade equivalents reflect the composition of the normative group.

There are certain **advantages** in using grade equivalent results:

- ◊ Scores are reported in understandable units.
- ◊ They provide direct comparison with performance of a student's peer.
- ◊ These scores provide an opportunity for study of growth over time.

As with any type of score, there are certain **disadvantages:**

- ◊ The scores are influenced by previous education and experience of norm groups.
- ◊ The scale units are not equal.
- ◊ Extrapolation from one grade level to another can be risky.
- ◊ Grade equivalents are not comparable across tests.
- ◊ Grade equivalents are not appropriate for use in placing students in grade levels corresponding to test scores.

QUARTILES

Norm-referenced standardized test results are also reported in **quartiles.** By using quartiles, a distribution of scores can be divided int four equal parts. Example:

> Consider the following scores: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12. By using quartiles, these scores can be divided into four groups. Score 3 would be the dividing point for Quartile 1, score 6 would be for Quartile 2, Score 9 for Quartile 3, and the remaining scores would fall within Quartile 4.

Quartile scores have certain **characteristics:**

- ◊ The first quartile (Q1) is the score that separates the lower 25% (1-25%) of the distribution from the rest.
- ◊ The second quartile (Q2) is the score that has exactly two quarters, or 50% (26-50%) of the distribution below it. The second quartile and the median are the same.
- ◊ The third quartile (Q3) is the score that divides the bottom three-fourths (51-75%) of the distribution from the top quarter.
- ◊ The fourth quartile (Q4) is the top 25% (76-100%) of the distribution of the scores.

Quartiles are useful when disaggregating test scores for a total class or school in that they can indicate where subpopulations perform as compared to the general population.

Quartiles are not a very precise means of summarizing data. They are less sensitive to the presence of a few very extreme scores.

STANINES

A **stanine** draws its name from the fact that it is a contraction of "standard nine." Stanines have whole number values ranging from 1-9. The mid-point or mean of a stanine is 5.

Comparison of Stanines and Percentiles:

Stanines	Approximate Percentiles	Percentage of Students
9 Highest Level	96-99	4%
8 High Level	90-95	7%
7 Well Above Average	78-89	12%
6 Slightly Above Average	60-77	17%
5 Average	41-59	20%
4 Slightly Below Average	23-40	17%
3 Well Below Average	11-22	12%
2 Low Level	5-10	7%
1 Lowest Level	1-4	4%

Stanines have certain **characteristics:**

- ◊ Stanines are single digits; they are not likely to be confused with percentages of test items answered correctly.
- ◊ Stanines can be readily compared because they are units on an equal interval scale.

There are certain **advantages** in using stanine scores:

- ◊ One can compute averages.
- ◊ One can compare student standing.
- ◊ They are easy to understand.
- ◊ Only a single digit is required to express its value.

Stanine scores also have certain **disadvantages:**

- ◊ Small differences in achievement will not be reflected.
- ◊ Differentiation of performance is particularly poor at the extremes.
- ◊ Stanines are less precise than percentile ranks.

PERCENTILE RANKS

Percentile rank scores indicate a student's standing or ranking in the norming population. The scores of any representative population of students will be normally distributed (bell-shaped.) The questions are designed so that only half of the students taking the test will correctly answer the items. At least half of the students will always score below average.

A **percentile rank** is a transformed score from its original number to a percent. It shows the percentage of scale scores in a norm group that fall below a given student's scale score. Example:

> If a student's scale score converts to a percentile rank of 75, this means that the student scored higher than approximately 75 percent of the students in the norm group.

Percentile ranks have the following **characteristics:**

- ◊ Percentile ranks range from 1 to 99.
- ◊ Percentile ranks can be reported in relation to national and/or local norm groups.
- ◊ A percentile rank does not represent the percentage of test items answered correctly.
- ◊ A scale of percentile ranks is not composed of equal measuring units; therefore, they may not be averaged.
- ◊ Scores can exaggerate small differences.

NORMAL CURVE EQUIVALENTS

Normal curve equivalents (NCEs) make it possible to make meaningf comparisons between different achievement test batteries and between different tests within the same battery. Example:

> Consider a student who receives an NCE of 65 on a reading test and a 55 on a mathematics test. One would be correct in saying that the reading score was ten points higher than the mathematics score. This cannot be done with percentile ranks.

Chapter 1 considers NCE scores when determining whether or not a school must write an improvement plan for its Chapter 1 program.

Following are several **characteristics** of NCEs:

- ◊ NCEs have many of the same characteristics as percentile ranks.
- ◊ NCEs range from 1 to 99 and coincide with the national percentile scale at 1, 50, and 99.
- ◊ NCEs have the advantage of being based on an equal interval scale.
- ◊ NCEs obtained by different groups of students on the same test or test battery may be averaged for the purpose of comparison.

Two **disadvantages** of NCEs are:

- ◊ NCEs have less inherent meaning than do percentiles;
- ◊ Growth expressed on an NCE gain is not good unless an indication of beginning and ending performance level is known.

REPORTING FORMATS

Just as there are numerous ways that scores can be reported, there are also numerous formats for reporting norm-referenced report results. Some of these formats are:

- ◊ Class Record Sheet
- ◊ Individual Test Record
- ◊ Objectives Performance Report
- ◊ Class Grouping Report
- ◊ Student Profile Report
- ◊ Parent Report
- ◊ Evaluation Summary
- ◊ Objectives Performance Report
- ◊ Board Report

REFLECTION

When taking a test there are many factors that influence our ability to perform well on the test. These factors may be both relevant and irrelevant. Relevant factors may be just whether we learned the material or not. Irrelevant factors can be test anxiety, test directions, native language of test taker, whether one slept well the night before, cultural background, etc.

There has been much talk about tests being culturally fair or not. Any and all tests can tell us something about the person taking the test; however, one must be very careful when interpreting test scores to fully understand the whole picture and be sure that what the test is telling us is accurate.

To illustrate this point: A student who speaks, reads, and understands English well goes to a foreign country. The student completes two years of college there and then returns to the United States. The college degree program is completed in the U.S. This student then takes an I.Q. test (just one of many standardized tests) and does poorly in the verbal area and high in the performance area of the test. The total I.Q. score is below average.

Does this mean that this particular person is really below average or not "normal" in relation to others in the norm group or to the population in general? There may be many issues affecting this particular person's performance such as language, experience, and culture.

It is extremely important not to make inferences based on one sole testing source. To have a complete profile of a student multiple assessments should be used.

COMMUNICATIONS

ASSESSMENT

KANSAS COMMUNICATIONS DEVELOPMENT PROGRAM

The Kansas State Board of Education adopted the **Kansas Communications Development Program** to improve communications education in the state of Kansas over the next several years. The initial focus is on communications through reading and writing; however, there is a long-range plan to incorporate other forms of communication such as listening and oral communications. This **multi-component** development plan includes the following:

1. The establishment of essential **outcomes** for reading and writing in Kansas schools

2. **Partnership** among business and industry, parents and educators to review reading and writing outcomes

3. **Staff development** to assist teachers in acquiring additional skills and techniques in teaching reading and writing

4. The **assessment** of individual student performance according to the reading and writing outcomes

5. **Student improvement plans** for those students whose performance indicates the need

6. Review of existing teacher education programs and review of **certification requirements** for teachers who teach students to read and to write

COMMUNICATIONS ASSESSMENT

One component of the KSBE Communications Development Program is the assessment of the communication outcomes. The initial state assessments, scheduled for spring of 1992, focus on **reading** and in **writing.** In the future, educational program outcomes will be written for the areas of listening, speaking, interpersonal communication and non-print media; and teachers, administrators and higher education staff will be consulted about assessing student performance in those areas.

Two equally important **purposes** have guided the large number of Kansas teachers, administrators and higher education faculty who have worked with the assessments. One purpose is to provide the Kansas education community, and other Kansas citizens as well, with an **estimate** of the performance of our students. These estimates are made to help all of us make decisions about instruction. A second purpose is to provide within the assessments **models for instruction**. The assessments themselve should model what we know about best instructional practice.

Both the reading and writing assessments will take place between **March 23 and April 17, 1992, in grades 3, 7, and 10**. The **reading** assessment will be a pilot assessment, but it will involve all students in accredited Kansas schools. The **writing** assessment will be a pilot program involving those Quality Performance Accreditation (QPA) buildings which choose to participate.

READING ASSESSMENT

The reading assessment should take **45 to 60 minutes**, but this is not a timed assessment in the strict sense of the word; for example, there will be no instructions to begin or end sections of the test within specified minutes.

The **reading selections** will be longer passages than were commonly used in past reading assessments, and the passages will have a wholeness or integrity rather than being parts of larger works. In addition, the passages will be chosen from writing that was written for a real purpose and audience rather than constructed for an assessment. There will be selections that are non-fiction and feature social studies and science topics, and some of the selections will be fiction.

There will be **four forms** of the reading assessment: two will be **multiple choice**; two will be **open-ended questions**. In each classroom there will be at least one multiple choice form and one open-ended form.

The Center for Testing and Evaluation (CETE) at the University of Kansas will **score** all the multiple-choice forms and a sample of the open-ended forms. Open-ended forms not included in the sampling may be formally scored at the local level (with the help of a manual prepared by CETE).

COMMUNICATIONS THROUGH WRITING ASSESSMENT

Writing is a way of learning as much as it is a means of reporting. Writing is a process which may not be the same for all students in all writing occasions; therefore, instruction must be interactive. The state assessment of writing provides a model for classroom instruction and individual student assessment.

The writing assessment will be conducted as much like a good **classroom writing experience** as possible. **Three or four days** should be allow for students to go through a process of responding to the topic given them, planning, drafting, revising, editing and making a clean copy. The student papers will be read by Kansas teachers trained in the **six-trait analyti assessment model** already in use in several Kansas school districts. The six traits included in this model are:

- ◊ ideas and content
- ◊ organization
- ◊ sentence fluency
- ◊ word choice
- ◊ voice
- ◊ conventions

Since each trait is scored on a five-point scale independently of each other, students have the opportunity to learn where their strengths and weaknesses lie.

A sample of student papers will be read at the Center for Testing and Evaluation. Student papers not sampled may be scored formally or read informally in the participating QPA buildings.

SIX-TRAIT ANALYTIC SCORING MODEL

The six-trait analytic model was developed by teachers for use by teachers in district or classroom level assessment. In developing this model, teachers asked themselves what it was they valued in student writing, then looked at hundreds of samples of writing, grades 3 through 12, noting the features that caused them to regard some writing as stronger, or more effective. The strengths and weaknesses they noted evolved into the **six-trait model**.

This model attempts to take a comprehensive view, to note the salient traits that affect how readers respond to a piece of writing, and yet avoid

redundancy across traits. This is not to say that the traits are not interrelated, though. There are **six traits** altogether--Ideas and Content Organization, Voice, Word Choice, Sentence Fluency and Conventions. Each, to some extent, has potential influence upon the others; and in particular, there are strong interrelationships between voice and word choice. Yet the traits are also distinct, and are scored separately.

Each paper, therefore, receives **six scores--one for each trait**. They are not weighted, nor are they summed or averaged in any way. The teachers who developed the model felt strongly that such averaging would undermine the intention of the model, which is to show that a given piece of writing can be very strong in one or more areas, yet much less strong in other areas. Students and teachers who receive the scoring results based on this model have an opportunity to see, therefore, just where those strengths and weaknesses lie.

Scoring, which is based on a **five-point scale**, is taught as a kind of balance system, in which a score of 3 represents the point where strengths and weaknesses with respect to a given trait are in balance. A score of 1 represents a predominance of weaknesses with respect to a given trait, and a score of 5 a predominance of strengths. Some papers tend to receive relatively consistent scores across traits, but many others receive scores that take in the full range of the scoring scale--4's and 5's on some traits, 1's and 2's on others. A paper may be conventionally very weak, for instance (poor spelling, little punctuation), but have a strong, natural storytelling voice that shines through and draws the reader right into the piece.

MATHEMATICS

ASSESSMENT

MATHEMATICS ASSESSMENT

THE KANSAS MATHEMATICS IMPROVEMENT PROGRAM

In the fall of 1989, the Kansas State Board of Education adopted the **Kansas Mathematics Improvement Program (KMIP)** to improve mathematics education in the state of Kansas over the next several years. This multi-component improvement plan plays a significant role in the Kansas State Board of Education's school restructuring process. The seven **components** are as follows:

1) The establishment of **Mathematics Standards** for Kansas schools

2) The **partnership** among business and industry, parents and educators to review mathematics standards

3) **Staff development** to assist teachers in acquiring additional skills and techniques in teaching mathematics

4) The **assessment** of individual student skills according to the mathematics standards

5) **Student improvement plans** for those students who do no meet the standards

6) Review of existing teacher education programs for preparing teachers and **certification requirements** for teaching mathematics

7) Redesign of the process for **accrediting schools** to emphasize outcomes and performance

The first component calls for the **establishment of mathemati standards**. In 1989, The National Council of Teachers of Mathematics (NCTM) published the *Curriculum and Evaluation Standards for School Mathematics* . This "standards document established a broad framework to guide national reform in school mathematics over the next decade, including curriculum priority in terms of content and emphasis." (NCTM)

Using the *Curriculum and Evaluation Standards for School Mathematics* as a guideline, KSBE staff and representatives from the Kansas Association of Teachers of Mathematics developed the ***Kansas Mathematics Curriculum Standards*** which was adopted by the KSBE in the spring of 1990. The standards include specific curriculum guidelines and examples in three age level divisions, K-4, 5-8, and 9-12.

THE CALL FOR CHANGE IN MATHEMATICS ASSESSMENT

The National Council of Teachers of Mathematics *Curriculum and Evaluation Standards for School Mathematics* not only gives a framework for curriculum reform but also gives guidelines for evaluation reform. "Evaluation is a tool for implementing the Standards and affecting change systemically. The main purpose of evaluation, as described in these standards, is to help teachers better understand what students know and make meaningful instructional decisions. The focus is on what happens in the classroom as students and teachers interact. Therefore, these evaluation standards call for changes beyond the mere modification of tests." (NCTM, p. 189)

There are several **reasons** why mathematics assessments must change:

- ◊ A curriculum that fulfills the *Mathematics Standards* will differ significantly, in both content and instruction, from most existing curricula.
- ◊ Assessment instruments must change because they communicate what is important for students to know.
- ◊ Existing assessments are based on different views of what knowing and learning mathematics means than the *Standards* call for.
- ◊ The assessed curriculum strongly influences what students are taught; therefore, if we value the *Standards,* the assessments must be aligned with the *Standards*. Changing assessment effects change!

THE MATHEMATICS EVALUATION STANDARDS

Evaluation is fundamental to the process of making the *Standards* a reality. Just as the curriculum standards propose change in K-12 content and instruction, the NCTM **evaluation standards** propose changes in the processes and methods by which information is collected. These changes are intended to increase and improve the gathering of relevant, useful information. Assessment and program-evaluation practices must change along with the curriculum.

The Evaluation Standards propose that --

- ◊ student assessment be integral to instruction
- ◊ multiple means of assessment methods be used
- ◊ all aspects of mathematical knowledge and its connections be assessed
- ◊ instruction and curriculum be considered equally in judging the quality of a program

EMPHASIS OF THE MATHEMATICS EVALUATION STANDARDS

Increased Attention	Decreased Attention
• Assessing what students know and how they think about mathematics	• Assessing what students do not know
• Having assessment be an integral part of teaching	• Having assessment be simply counting correct answers on tests for the sole purpose of assigning grades
• Focusing on a broad range of mathematical tasks and taking a holistic view of mathematics	• Focusing on a large number of specific and isolated skills organized by a content-behavior matrix
• Developing problem situations that require the applications of a number of mathematical ideas	• Using exercises or word problems requiring only one or two skills

• Using multiple assessment techniques, including written, oral, and demonstration formats	• Using only written tests
• Using calculators, computers, and manipulatives in assessment	• Excluding calculators, computers, and manipulatives from the assessment process
• Evaluating the program by systemically collecting information on outcomes, curriculum, and instruction	• Evaluating the program only on the basis of test scores
• Using standardized achievement tests as only ONE of the many indicators of program outcomes	• Using standardized achievement tests as the only indicator of outcomes

The vision of mathematics education in the *Standards* places new demands on instruction and focuses us to assess the manner and methods by which we chart our students' progress. In an instructional environment that demands a deeper understanding of mathematics, testing instruments that call for only the identification of single correct responses no longer suffice.

◊ Assessment instruments must reflect the scope and intent of our instructional program to have students solve problems, reason, and communicate.

◊ The instruments must enable the teacher to understand students' perceptions of mathematical ideas and processes and their ability to function in a mathematical context.

◊ Instruments must be sensitive enough to help teachers identify individual areas of difficulty in order to improve instruction.

Many assessment techniques are available including the following:

◊ Multiple-choice questions	◊ Discussion
◊ Short-answer questions	◊ Open-ended questions
◊ Homework	◊ Projects

- ◊ Journals and essays
- ◊ Class presentations
- ◊ Dramatizations
- ◊ Interviews

These techniques are appropriate for students working in whole-class settings, in small groups, or individually. These and other techniques reflect the diversity of instructional methods implied by the curriculum standards and the various ways in which students learn. Instructional decisions should be based on the convergence of information from different sources that supports or corroborates the need for a given educational response. When available information is contradictory, as for example, when a student achieves good test scores but is unable to communicate mathematical processes, an assessment must search for deeper explanation. This means, **assessment should not rely on a single instrument or technique**.

THE KANSAS MATHEMATICS PILOT ASSESSMENT

THE PRIMARY FOCUS OF THE ASSESSMENT IS AND WILL CONTINUE TO BE THE KANSAS MATHEMATICS CURRICULUM STANDARDS!
Once the Kansas Mathematics Curriculum Standards were adopted by KSBE, the next step was to develop a variety of techniques to assess individual students' performances on these standards. These assessment instruments are to be developed at classroom, district, and state levels.

1991 MATHEMATICS PILOT ASSESSMENT

GENERAL INFORMATION

The first Kansas Mathematics Pilot Assessment was given to all third, seventh, and tenth grade students in the spring of 1991. This pilot assessment distinguished itself from other testing initiatives in the following ways:

- ◊ Tests were prepared to reflect the Kansas Curriculum Standards.

- ◊ Multiple forms of the assessment were given at each grade level classroom. By using multiple non-equivalent forms, educators were exposed to the entire range of the curriculum standards.

- ◊ Formats included objective and performance assessment (open-ended) items.
- ◊ Each form included a timed estimation skills section.
- ◊ Students could use calculators except on the estimation section.
- ◊ Objective test forms included multiple-correct response items.
- ◊ Content included probability and statistics, geometry, number sense, logic and number theory at all grade levels.
- ◊ Students had to reason, problem-solve and provide evidence of their mathematical conceptualization and process skills.
- ◊ Scoring rubrics were provided for local district evaluation of student responses to open-ended items.

THE 1992 KANSAS MATHEMATICS PILOT ASSESSMENT

The **content** of the 1992 Kansas Mathematics Pilot Assessment will focus on the *Kansas Mathematics Curriculum Standards:*

Cognitive (Higher Order Thinking) **Skills**

- •Estimation
- •Knowledge Base
- •Routine Problem Solving
- •Non-routine Problem Solving
- •Mathematical Communication
- •Mathematical Reasoning

- •Mathematical Procedures
- •Mathematical Concepts

Content Skills

- •Estimation
- •Number Sense
- •Number Operations
- •Geometry
- •Measurement
- •Graphing/Data Organization
- •Probability and Statistics
- •Patterns/Logic
- •Algebraic Concepts

The following information specifies the grades assessed, the dates, format, etc.:

- ◊ **Grades Assessed:** All regular education students at grades **four, seven and ten** will participate in the assessment. Special education students will be assessed unless their individual education plan specifies that they should not be involved in the assessment. ESL/bilingual education students will be assessed if the local district determines that the student can benefit from participating in the assessment.

- ◊ **Assessment Dates:** March 23 through April 17, 1992.

- ◊ **Format:** Each assessment will consist of a timed estimation section, a multiple-choice section, and an open-ended response section. At each grade level there will be two or three non-equivalent forms of the assessment, each using this format.

- ◊ **Time Needed:** Because of changes in the assessment, **two class periods**, approximately 90 minutes, will be needed for taking the assessment itself. Since this is an assessment of mathematical power, students should be given as much time as they need to complete the assessment.

- ◊ **Calculators:** These should be available for all students to use on all portions of the assessment, except for the estimation section. At fourth grade, calculators must be able to add, subtract, multiply and divide. Seventh grade calculators should also have a square root key and tenth grade ones should have exponential capability.

- ◊ **Scoring:** For the majority of the assessment items, students will use machine-scored response sheets. Local districts will score each student's LIMITED number of open-ended responses.

RESOURCES

RESOURCES

As schools develop and implement multiple assessment techniques, they often seek assistance. One resource available through the Kansas State Board of Education, Outcomes Education Team, is a recently purchased ten set video-tape series: ***Classroom Assessment Training Program.*** Rick Stiggins developed these tapes with the Northwest Regional Educational Laboratory (NWREL). The tapes are designed to be used in training teachers and administrators sound assessment techniques and practices. Each of the tapes is designed to be used as part of a 3-7 hour training session on assessment. Please contact the Outcomes Education Team at 913-296-3798 for more information regarding use of these tapes.

CLASSROOM ASSESSMENT TRAINING PROGRAM

Listed below are the title and a brief description of each video-tape. Also the recommended length of time for a workshop using that tape is indicated in parentheses.

A Status Report on Classroom Assessment: The complex task demands of classroom assessment are reviewed, essential classroom assessment competencies are described, and the serious and chronic mismatch between teacher training in assessment and the assessment realities of classroom life is described. Specific strategies are offered for improving the quality of teachers' assessments. (1 hr.)

Understanding the Meaning and Importance of Quality Classro Assessment: Participants engage in a series of brainstorming. activities to explore how to become critical consumers of assessments and their results. Attention focuses on what student characteristics teachers assess, why they assess, how they assess, what can go wrong, how to prevent problems and how to evaluate the quality of any assessment. (3 hours)

Measuring Thinking in the Classroom: This session reveals how easy it is to assess higher order thinking when assessments arise out of a clear and specific definition of the target and how difficult it is when the target is out of focus. Participants also learn a variety of strategies of integrating thinking assessments into instruction. (3 hours)

Paper and Pencil Test Development: Teachers learn how to plan tests, select the important material to test, and write sound test items. The workshop provides lots of practice and many ideas for integrating paper and pencil instruments into instruction. (3 hours)

Developing Assessments Based on Observation and Judgment: Participants learn a step-by-step process for designing and constructing performance assessments and they learn how to align those assessments with important behavior and product-related achievement targets. (3 hours)

Writing Assessment: Issues and Answers: The focus is on direct assessment of writing based on teacher evaluation of student writing samples. Holistic, analytical, and primary trait scoring alternatives are demonstrated. (3 hours)

Writing Assessment: Training in Analytical Scoring Teachers learn to apply a six-trait analytical scoring model by hearing about each trait and then engaging in extensive practice in the application of each scoring criterion to actual samples of student writing. (7 hours)

Assessing Reading Proficiency: Reading is defined as a dynamic interaction among reader, text and context. Key attributes of a good reader are articulated and procedures are suggested for using paper and pencil tests, performance assessments and personal communication to assess important aspects of the reading process. (3 hours)

Developing Sound Grading Practices: This session explores the purposes for report card grades, student characteristics that should be factored into grades, appropriate sources of grading data, and ways of combining data over time to determining grades. Teachers explore their own values about grades and grading. (4 hours)

Understanding Standardized Tests: The focus in on norm-referenced standardized achievement batteries. Participants learn how these tests are designed and constructed and they learn how the norming process provides the basis for score interpretation. Commonly used scores are clearly explained. (3 hours)

TRANSPARENCY MASTERS

Kansas State Board of Education staff have developed transparency masters that correspond to the document, *Assessment! Assessment! Assessment!* If you are planning meetings or workshops on assessment and need copies of the transparency masters, please contact the Outcomes Education Team at 913-296-4946.

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APPENDIX

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PERFORMANCE ASSESSMENT BLUEPRINT

CONTEXT:

1. What performance will you evaluate?

   Content: _____

   Skill(s): _____

2. How will proficiency manifest itself?

   _____ Behavior(s) to be observed [What behaviors(s)?]_____

   _____

   _____ Product(s) to be observed [What product(s)?]_____

   _____

3. Why will you conduct this assessment?

   _____ To inform decisions (What decisions?)

   _____ Diagnosis _____ Grading _____ Grouping

   _____ Evaluating your teaching _____ Other

   _____ To convey information to students (What information?)_____

   _____

4. What kind of assessment result will you need?

   _____ Rank order

   _____ Attainment of specific target(s) (mastery)

Classroom Assessment Based on Observation
Northwest Regional Educational Laboratory
Portland, Oregon

CRITERIA

5. By what standards will you judge proficiency?

CRITERION	CONTINUUM
1.	
2.	
3.	

METHOD

6. How will you elicit this performance so you can observe it?_____

_____ Structured exercise (Example:)_____

_____

_____ Naturally occurring events (What events?)_____

_____

7. How will you rate performance and create a record of your assessement?

_____ Checklist

_____ Rating scale

_____ Portfolio

_____ Audio or video tape

_____ Anecdotal record

8. Who shall evaluate performance?

_____ Teacher

_____ Student

_____ Peer

_____ Other (Who? _____)

PURPOSES FOR A PORTFOLIO

Part 1 - WHO SHOULD DESIGN THE SYSTEM?

For your portfolio system...

- o Who will be involved in planning?
- o Who will have primary control over the decisions to be made?
- o What leeway will there be for experimentation?

Part 2 - HOW COULD YOU USE A PORTFOLIO?

Which of the following purposes are of particular importance for the portfolio system you are developing?

_____ To show growth or change over time

_____ To show the process by which work is done as well as the final product

_____ To create collections of favorite or personally important work

_____ To trace the evolution of one or more projects/products

_____ To prepare a sample of best work for employment or college admission

_____ To document achievement for alternative credit for coursework

_____ To place students in the most appropriate course

_____ To communicate with student's subsequent teacher

_____ To review curriculum or instruction

_____ Large-scale assessment

_____ Program evaluation

_____ Other

PURPOSES FOR A PORTFOLIO

Part 3 - WHERE IS THE LINK TO INSTRUCTION?

What is the general curricular focus of the portfolio system you are planning?

___ Reading
___ Writing
___ Integrated Language Arts
___ Social Studies
___ Science
___ Fine Arts
___ Math
___ Other

What are two major instructional goals for your program(s)?

1.

2.

How will portfolios be used for classroom instruction/assessment in the system you are designing? What problems (if any) do you anticipate? What issues need to be resolved?

GUIDELINES FOR SELECTION

WHAT WORK GOES IN THE PORTFOLIO?

Record the ideas you have for what items might be included in the portfolio. Some things may be required; some things may be optional -- in which case you might simply list suggestions to give students ideas. Remember, guidelines can range from unstructured (eg., choose something you feel proud of, something that represents your work as a 6th grader, etc.) to highly structured (eg., include an essay on a tragic figure in Shakespearean literature).

Must Be Included	Options
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

SOME IDEAS:

photos of projects art works science logs

research project video tape

test results writing samples

affective surveys rating scales

personal response
to cultural event

P.E. achievement award drama script

Look back at your continuum on guidelines for selection (handout) and rate the design of your new portfolio. Mark the point on the line where your portfolio falls.

unstructured loose moderate highly structured

STUDENT PARTICIPATION IN SELECTION

WHO "OWNS" THE PORTFOLIO?

In your portfolio system, who will select specific work samples for the portfolio?

___ Student only
___ Teacher(s) only
___ Student and teacher(s) together
___ Other

How will storage and transfer occur, if at all?

Who will have ownership of the portfolio?

___ The student alone
___ The teacher(s) alone
___ The student and teacher(s) together
___ The school at which is portfolio is created
___ Parents
___ The student and parents together
___ The school at which the portfolios is currently stored and used
___ Other

Who will have access to the portfolios?

___ The student and teacher(s) who created it
___ Any teacher who needs/wants information provided by it
___ Counselors
___ Anyone in the school where the portfolio is housed
___ Anyone from the district who shares and interest in the student's educational welfare
___ Parents
___ Other

CRITERIA FOR JUDGING MERIT

WHAT CRITERIA WILL BE USED TO ASSESS THE PORTFOLIOS AND WHO WILL DEVELOP THEM?

For the portfolio system you are developing, choose one of the types of products that students will be asked to place in their portfolio. What should a good performance look like? What does a poor performance look like? In other words, what are your criteria for judging performance?

For your portfolio project, which of the following considerations do you think are likely to be important in assessing the portfolio as a whole product?

___ Amount of information included
___ Quality of individual pieces
___ Variety in the kinds of things included
___ Quality and depth of self-reflection
___ Growth in performance, as indicated in products or materials included
___ Apparent changes in attitude or behavior, as indicated on surveys, questionnaires, etc.
___ Student self-assessment
___ Other:

What criteria will you use to assess the student metacognition of self-reflection in the portfolio?

___ Thoroughness
___ Accuracy
___ Support of statements by pointing to specific aspects of the work
___ Good synthesis of ideas
___ Self-reflection
___ Other:

Who will help develop/select/adapt the performance criteria?

___ Students
___ Teachers
___ Curriculum experts
___ Evaluation and assessment experts
___ Other:

How will you ensure that your criteria reflect current thinking concerning good performance in the area(s) you chose?

STUDENT SELF-REFLECTION

What questions would you consider asking students in order to prompt them to self-reflect on the work they are choosing for their portfolios?

1.

2.

3.

Return to the "Guidelines for Selection" worksheet page and decide which items you think would be appropriate for student self-selection.

Choose one from your list and write a series of self-reflection questions to guide students on their thinking.

1.

2.

3.

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PLANNING THE NEXT STEP

WHAT STAFF DEVELOPMENT ACTIVITIES WILL GET YOUR PORTFOLIO PROJECT OFF THE GROUND?

Imagine that you are planning to initiate your portfolio system during the coming year. Which of the following types of inservice would be most helpful to you and others who will be involved?

___ Overview of the philosophy/rationale for use of portfolios

___ Practical hands-on workshop on designing/assembling portfolios

___ Ideas for portfolio management (eg., ownership, transfer, etc.)

___ Training in sound assessment practices, including use of portfolios in assessment

___ Training in development and use of sound criteria

___ Training in how to teach students good self-refelction skills

___ Content area training

___ Other

Educational Outcomes
for
Reading and Writing

As a result of participating in a K-12 communications program, learners will accomplish the following outcomes.

1. Learners will engage in reading and writing as pleasurable activities which enhance individual creativity and imagination.

The intellectual and aesthetic pleasures of reading and writing are desirable ends in themselves, but such pleasurable work should also result in enhanced creativity and imagination which lead students to take on more challenging reading and writing, and to think, read and write with a curiosity and an openness that will help them make decisions and solve problems.

Enabling Outcomes

Learners will---

A) Read and write with open-mindedness, curiosity, and a readiness to ask questions.
B) Develop their own standards for evaluating reading and writing.
C) Take some risks, choosing to read about subjects new to them, to read types of books new to them and to try types of writing new to them.

2. Learners will understand that in the processes of reading and writing, they search for meaning others have created, and they make meaning of their own.

Students' reading and writing lead them to an accumulation of facts, and involve them in an interactive process in which they establish the significance of those facts and use them to create ideas, opinions and questions. Reading and writing are frequently the means by which students make important connections among school subjects and between school subjects and their own experience. Students' understanding that such connections are essential to seeing a larger picture, and that reading and writing are the means to making such meaning, allows them to continue toward clarity, order and a subtlety of understanding.

Enabling Outcomes

Learners will --

A) Generate, select, arrange, evaluate and revise ideas as meaning emerges in their reading and writing.
B) Recognize the influence of their prior knowledge on their understanding of their reading and their willingness to read.
C) Explain how both numbers and words make up systems that we read and write to learn.

3. Learners will recognize the diversity of language in a multicultural society and accord each dialect equal status as a social expression of human experience.

No language or dialect is linguistically superior to another, just as no culture is inherently superior to another culture. American students need to honor diversity in language as a part of honoring diverse cultures; especially compelling is the need to honor the dialects and cultures that are within our own borders. At the same time, students must recognize the function of appropriate levels of usage when communicating with particular audiences. In practice, such recognition involves the selection of the speaker's or writer's social dialect most appropriate to audience and purpose.

Enabling Outcomes

Learners will --

A) Value their own language and dialect.
B) Understand that no language or dialect is superior to another.
C) Understand why some languages and dialects are misjudged superior to others.
D) Understand that to meet a writer's purpose, the use of standard American English may be more appropriate than other dialects.

4. Learners will read effectively a variety of written material for a variety of purposes.

To read effectively, students must know their purpose for reading, and develop and use the strategies and skills that help them best accomplish their purpose, including the combining of reading, speaking, writing and reflecting. The pleasure of having read something important to them should lead students to continue reading and to develop further as readers.

Enabling Outcomes

Learners will --

A) Understand that reading is not a set of steps but a process that varies with material to be read, the reader's purpose, and the individual reader.
B) Discover their own best reading processes as they generate, arrange, select, evaluate and revise their ideas while meaning emerges in their reading.
C) Be aware of their own attitudes toward what they are reading and the effect attitude has on accomplishing their purpose for reading.
D) Read orally well enough to share their reading with a listener.
E) Read silently at a rate appropriate for their purpose in reading.
F) Comprehend writing prepared for a variety of audiences and purposes.
G) Comprehend both shorter and longer selections.
H) Explain a writer's message.
I) Explain their interpretations of what they have read.
J) Make connections between one writer's work and that of another.
K) Reflect on what they read and evaluate it, often with other readers, according to their own standards and appropriate standards offered them.

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5. Learners will write effectively for a variety of purposes and audiences.

To write effectively, students must know their audience and purpose, must write to communicate an idea and write to discover some of their own thinking as they write. In addition, students must develop and use the strategies and skills that will help them accomplish their purpose. The pleasure of having written well should lead them to write again and to develop further as writers.

Enabling Outcomes

Learners will --

A) Understand that writing is not a set of steps but that it involves recurring activities which may vary as the writer's purpose varies.
B) Discover their own best writing processes as they generate, select, arrange, evaluate, and revise ideas while meaning emerges in their writing.
C) Be aware of their attitudes toward their audience and topic and the effect of attitude on their writing.
D) Reflect on their writing and evaluate it often with other writers, according to their own standards and to appropriate standards offered them.
E) Demonstrate control over such features of writing as the following: ideas and content that are well developed, clear and interesting; an authentic writer's voice; an organization that helps both reader and writer; effective word choice; clear and fluent sentences; the conventions of writing (spelling, capitalization, punctuation, usage).

6. Learners will recognize that some of their reading is art, and that such writing frequently mirrors human experience across cultures which invites a personal response.

Students should know that reading calls upon a knowledge of interpretation, but that personal and varied interpretation is part of the richness of any art. Students should know that people in a variety of cultures use the art of writing to address the essential questions of humankind, and that the ways diverse cultures ask and answer those questions provide fresh perspectives on one's own culture.

Enabling Outcomes

Learners will --

A) Acknowledge and explain their own responses to what they read.
B) Respect the responses of other readers, and acknowledge the possible validity of more than one reader's interpretation.
C) Read the writing of diverse cultures, finding recurrent and common themes, and explain how membership in an ethnic or social group may affect interpretation.
D) Explain how the writing of diverse cultures addresses such essential issues as human dignity, the common good, and the rights of the individual.

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The Six-Trait Analytic Model

The six-trait analytic model was developed by teachers for use by teachers in district or classroom level assessment. In developing this model, teachers asked themselves what it was they valued in student writing, then looked at hundreds of samples of writing, grades 3 through 12, noting the features that caused them to regard some writing as stronger, or more effective. The strengths and weaknesses they noted evolved into the six-trait model.

This model attempts to take a comprehensive view, to note the salient traits that affect how readers respond to a piece of writing, and yet avoid redundancy across traits. This is not to say that the traits are not interrelated, though. There are six traits altogether--Ideas and Content, Organization, Voice, Word Choice, Sentence Fluency and Conventions. Each, to some extent, has potential influence upon the others; and in particular, there are strong interrelationships between voice and word choice. Yet the traits are also distinct, and are scored separately.

Each paper therefore receives six scores--one for each trait. They are not weighted, nor are they summed or averaged in any way. The teachers who developed the model felt strongly that such averaging would undermine the intention of the model, which is to show that a given piece of writing can be very strong in one or more areas, yet much less strong in other areas. Students and teachers who receive the scoring results based on this model have an opportunity to see, therefore, just where those strengths and weaknesses lie.

Scoring, which is based on a five-point scale, is taught as a kind of balance system, in which a score of 3 represents the point where strengths and weaknesses with respect to a given trait are in balance. A score of 1 represents a predominance of weaknesses with respect to a given trait, and a score of 5 a predominance of strengths. Some papers tend to receive relatively consistent scores across traits, but many others receive scores that take in the full range of the scoring scale--4's and 5's on some traits, 1's and 2's on others. A paper may be conventionally very weak, for instance (poor spelling, little punctuation), but have a strong, natural storytelling voice that shines through and draws the reader right into the piece.

Increasingly, writing teachers and researchers--Donald Graves, Donald Murray, and Peter Elbow, for instance--have spoken of the importance of a strong, personal, individual voice in writing. The teachers who developed the model were especially concerned that this important trait not be overlooked, as it so often is in other analytical scoring systems. Conventions nearly always receive attention. So does organization. So do ideas--though different models tend to have their own way of looking upon this trait. Many models do not deal with voice at all, however; yet this is so often the quality which separates writing which moves us as readers from writing which does not. The six-trait model attempts to help readers define voice in a way that enables them not only to make evaluations, but to share their understanding of this trait with students.

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Analytic Rating Guide

IDEAS AND CONTENT

5 This paper is clear in purpose and conveys ideas in an interesting, original manner that holds reader's attention. Often, the writing develops as a process of discovery for both reader and writer. Clear, relevant examples, anecdotes or details develop and enrich the central idea or ideas.

- The writer seems to be writing what he or she knows, often from experience.
- The writer shows insight--a good sense of the world, people, situations.
- The writing is often enlivened by spontaneity or a fresh, individual perspective.
- The writer selects supportive, relevant details that keep the main idea(s) in focus.
- Primary and secondary ideas are developed in proportion to their significance; the writing has a sense of balance.

3 The writer's purpose is reasonably clear; however, the overall result may not be especially captivating. Support is less than adequate to fully develop the main idea(s).

- The reader may not be convinced of the writer's knowledge of the topic.
- The writer seems to have considered ideas, but not thought things through all the way.
- Ideas, though reasonably clear and comprehensible, may tend toward the mundane; the reader is not sorry to see the paper end.
- Supporting details tend to be skimpy, general, predictable, or repetitive. Some details seem included by chance, not selected through careful discrimination.
- Writing sometimes lacks balance: e.g., too much attention to minor details, insufficient development of main ideas, informational gaps.
- The writer's control of the topic seems inconsistent or uncertain.

1 This paper lacks a central idea or purpose--or the central idea can be inferred by the reader only because he or she knows the topic (question asked).

- Information is very limited (e.g., restatement of the prompt, heavy reliance on repetition) or simply unclear altogether.
- Insight is limited or lacking (e.g., details that do not ring true; dependence on platitudes or stereotypes).
- Paper lacks balance; development of ideas is minimal, or there may be a list of random thoughts from which no central theme emerges.
- Writing tends to read like a rote response--merely an effort to get something down on paper.
- The writer does not seem in control of the topic; shorter papers tend to go nowhere, longer papers to wander aimlessly.

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Analytic Rating Guide

ORGANIZATION

5 The writer organizes material in a way that enhances the reader's understanding, or that helps to develop a central idea or theme. The order may be conventional or not, but the sequence is effective and moves the reader through the paper.

- Details seem to fit where they're placed, and the reader is not left with the sense that "something is missing."
- The writer provides a clear sense of beginning and ending, with an inviting introduction and a satisfying conclusion ("satisfying" in the sense that the reader feels the paper has ended at the right spot).
- Transitions work well; the writing shows unity and cohesion, both within paragraphs and as a whole.
- Organization flows so smoothly that the reader doesn't have to think about it.

3 The writer attempts to organize ideas and details cohesively, but the resulting pattern may be somewhat unclear, ineffective, or awkward. Although the reader can generally follow what's being said, the organizational structure may seem at times to be forced, obvious, incomplete or ineffective.

- The writer seems to have a sense of beginning and ending, but the introduction and/or conclusion tend to be less effective than desired.
- The order may not be a graceful fit with the topic (e.g., a forced conventional pattern, or lack of structure).
- The writer may miss some opportunities for transitions, requiring the reader to make assumptions or inferences.
- Placement or relevance of some details may be questionable (e.g., interruptive information; writer gets to the point in roundabout fashion).
- While some portions of the paper may seem unified (e.g., organization within a given paragraph may be acceptable), cohesion of the whole may be weak.

1 Organization is haphazard and disjointed. The writing shows little or no sense of progression or direction. Examples, details, or events seem unrelated to any central idea, or may be strung together helter-skelter with no apparent pattern.

- There is no clear sense of a beginning or ending.
- Transitions are very weak or absent altogether.
- Arrangement of details is confusing or illogical.
- There are noticeable information "gaps"; the reader is left dangling, or cannot readily see how the writer got from one point to another.
- The paper lacks unity and solidarity.

Analytic Rating Guide

VOICE

5 The paper bears the unmistakable stamp of the individual writer. The writer speaks directly to the reader, and seems sincere, candid and committed to the topic. The overall effect is individualistic, expressive and engaging; this paper stands out from the others.

- The reader feels an interaction with the writer, and through the writing, gains a sense of what the writer is like.
- The paper is honest. There is a real effort to communicate, even when it means taking a risk (e.g., an unexpected approach or revealing of self).
- The writing is natural and compelling.
- Tone is appropriate and consistently controlled.
- The writer's own enthusiasm or interest comes through and brings to topic to life.

3 The writer makes an honest effort to deal with the topic, but without a strong sense of personal commitment or involvement. The result is often pleasant or acceptable, yet not striking or compelling in a way that draws the reader in.

- The reader has only an occasional or limited sense of interaction with the writer.
- Writer may seem self-conscious or unwilling to take a risk--may seem to be writing what he/she thinks the reader wants.
- Paper lacks individuality, or the ring of conviction.
- The writing communicates, but only in a routine, predictable fashion that tends to make it blend in with the efforts of others.
- Voice may be inconsistent; it may emerge strongly on occasion, only to shift or even disappear altogether.

1 The writer may not have understood the assignment, or may simply have felt indifferent toward the topic. As a result, no clear voice emerges. The result is flat, lifeless, very mechanical and stilted, or possibly inappropriate.

- The reader has no sense that this writer was "writing to be read," and experiences virtually no writer-reader interaction.
- The writing has virtually no individual personality or character; there is no identifiable voice behind the words.
- There is little or no evidence of the writer's involvement in the topic.

Analytic Rating Guide

WORD CHOICE

5 The writer consistently selects words that convey the intended message in an interesting, precise and natural way. The result is full and rich, yet not overwhelming; every word carries its own weight.

- Words are specific, accurate, and suited to the subject. Imagery is strong.
- Lively, powerful verbs give the writing energy, visual appeal, and clarity.
- Vocabulary may be striking, colorful, or unusual--but the language isn't overdone.
- Expression is fresh and appealing, fun to read. The writer uses cliches or slang sparingly, and only for effect.
- The writer may experiment with uncommon words, or use common words in a delightful way.
- Figurative language, if used, is effective.

3 The writer's word choice is adequate to convey meaning, but the language tends toward the ordinary. The writer doesn't consistently reach for the "best" way to say something, but instead often settles for the first word or phrase that comes to mind. The result is a sort of "generic paper" that sounds familiar, routine, or commonplace.

- Language communicates quite well, but without a sense of satisfying fullness or power, the reader has the feeling it could have been written better.
- Imagery may be weakened by overuse of abstract, general language.
- Though the reader can interpret the meaning quite readily, some words lack precision or vigor.
- Attempts at the unusual, colorful or difficult are not always successful. The language may seem overdone or calculated to impress rather than natural.
- Though an occasional phrase may catch the reader's eye, cliches, redundancies and hackneyed phrases pop up with disappointing frequency; there are few surprises or enticing twists.

1 The writer is struggling with a limited vocabulary, often groping for words and phrases to convey meaning. Meaning may be difficult to determine (e.g., the writer says one thing but seems to mean another), or else the language is so vague and abstract that only the broadest, most general sorts of messages are conveyed.

- Writing is often characterized by monotonous repetition, overwhelming reliance on worn, threadbare expressions, or heavy reliance on the prompt (topic) itself for key words and phrases.
- Imagery is very weak or absent; the reader lacks sufficient concrete details to construct any mental picture.
- Words tend to be consistently dull, colorless and trite.
- In some instances, word choice may seem careless, imprecise, or just plain wrong.

Analytic Rating Guide

SENTENCE STRUCTURE

5 The paper is fluid, and reads easily throughout. It has an easy-on-the ear flow and rhythm when read aloud. Sentences have a strong and rhetorically effective structure that makes reading enjoyable.

- Sentence structure clearly conveys meaning, with no ambiguity.
- Writing sounds natural and fluent, with effective phrasing.
- Sentences are appropriately concise.
- Varied sentence structure and length add interest.
- Fragments, if used, are stylistically appropriate. They seem right.

3 Sentences are understandable, but tend to be mechanical rather than fluid. While sentences are usually correct, the paper is not characterized by a natural fluency and grace. Occasional flaws or awkward constructions may necessitate re-reading.

- Sentence structure sometimes clearly conveys meaning--and sometimes not. Structural problems may sometimes create ambiguity.
- Some sentences lack energy, character or effectiveness (e.g., they may be hampered by awkward structure, unnecessary complexity, roundabout expression, wordiness, dangling modifiers, ineffective use of passive voice, or repetitious beginnings--"I did this," "I did that").
- Sentence variety (length or structure) tends to be more the exception than the rule.
- Fragments, if used, may sometimes be ineffective or confusing.

1 The writing is generally awkward and therefore hard to read aloud. It does not sound natural. Sentences tend to be choppy, incomplete, or so rambling and irregular that it may be difficult to tell where one should end and the next begin.

- Because sentence structure frequently does not function to convey meaning, reader may pause several times to question what is meant.
- Sentences lack both fluency and correctness. The writer may not write in conventional sentences at all. Or, sentences may seem stiffly constructed, disjointed, endlessly meandering (e.g., many run-ons), or nonsensical.
- Short, choppy sentences relentlessly monotonous rhythms or patterns (e.g., subject-verb or subject-verb-object over and over) that produce a jarring or sing-song effect.
- Fragments are confusing or ineffective. Writer seems to have little grasps of how words fit together, or of where one idea logically stops and the next begins.

Analytic Rating Guide

WRITING CONVENTIONS

5 The writer's skillful use of standard writing conventions (grammar, capitalization, punctuation, usage, spelling, paragraphing) enhances readability. There are no glaring errors. In fact, while the paper may not be flawless, errors tend to be so minor that the reader can easily overlook them unless searching for them specifically. (Deliberate, controlled deviations from convention--in dialogue, for instance--are acceptable, provided they enhance the overall effect.)

- Grammar (e.g., noun-verb agreement; noun-pronoun agreement; verb tense; forms of nouns, verbs, pronouns and modifiers) is essentially correct.
- Punctuation is smooth and enhances meaning. Informalities, such as dashes or contractions, allowed.
- Spelling is generally correct, even on more difficult words.
- Usage is generally correct, or acceptable given the purpose of the writing. The writer avoids double negatives (e.g., couldn't hardly) and nonstandard usage (e.g., could of been, more better, she had ought to do it, irregardless, leave me figure this out). Informalities (e.g., you will find rather than the more formal one will find) are acceptable.
- Paragraphing (i.e., indenting) works in harmony with the inherent organization of the paper.

3 Errors in writing conventions are noticeable and begin to impair readability. Reader can follow what is being said overall, but may need to pause or re-read on occasion.

- Occasional problems in grammar disrupt the flow of the writing. For example, agreement may be inconsistent; or there may be shifts in tense, improper verb forms (e.g., lay down here), improper pronoun forms (theirselves, me and Jim will go), use of adjectives for adverbs (he did good), and so on.
- Punctuation, capitalization and spelling errors may be sufficiently frequent or serious to momentarily distract the reader.
- Some usage problems (e.g., double negatives, use of nonstandard expressions such as irregardless) may be evident.
- Paragraphing is attempted, but paragraphs may not always begin at the right places. As a result, paragraph structure (indenting) does not always complement the paper's inherent organization.

1 Numerous errors in usage and grammar, spelling, capitalization and/or punctuation consistently distract the reader, taking attention away from the writer's message and severely impairing readability.

- The student shows very limited understanding of or ability to apply conventions.
- Errors in grammar and usage are frequent and tend to be very noticeable.
- Basic punctuation may be omitted, haphazard, or just plain wrong.
- Capitalization is often incorrect or highly inconsistent.
- Spelling errors tend to be frequent, even on common words.
- Paragraphing is illogical or arbitrary (e.g., paragraphs almost never seem to begin in the right places).

** Kansas Mathematics Curriculum Standards

On September 13, 1989, the Kansas State Board of Education approved the Mathematics Improvement Plan. A committee of Kansas mathematics educators agreed to write a set of mathematics curricular standards as part of this plan. The following standards and their outcomes are the work of that committee. In April, 1989, the National Council of Teachers of Mathematics (NCTM) published its Curriculum and Evaluation STANDARDS for School Mathematics. The Kansas standards closely parallel the NCTM Standards and in some instances are quotations from that publication. The outcomes identified are those upon which a Kansas mathematics assessment will be based.

The general goals are these:

- All students become mathematical problem solvers.
- All students learn to communicate mathematically.
- All students learn to reason mathematically.
- All students recognize mathematical connections.
- All students learn to value mathematics.
- All students become confident in their own mathematical ability.

The view of instruction in this curriculum includes the following beliefs:

- All students can learn mathematics.
- Each year all students will experience the full range of math content addressed in the standards for their grade level.
- Mathematics will be presented in a format which involves the students as active participants and the teachers as facilitators in the learning process.
- Students will develop the skills to solve problems in both independent and cooperative situations.
- Instructional activities will encompass real-world experiences and interdisciplinary approaches to learning.
- Mathematics instruction will be supported by appropriate technology.

The implementation of the following standards will be based on the assumptions that:

- All classrooms will have ample sets of manipulative materials and supplies.
- All classrooms will have calculators and computers available.
- Resources needed to support appropriate instruction will be available.
- Ongoing teacher training will be provided.

**For complete document with examples contact KSBE.

MATHEMATICS STANDARDS
Grades K-4

On completion of mathematics studies in grades K-4, the students will demonstrate mathematics skills in the following areas according to these standards:

*I&III. Mathematics as Problem Solving and Reasoning

The students will solve problems and apply problem solving strategies, including those from real life problems. Students will use problem-solving strategies of:

- constructing diagrams, pictures, figures, or models.
- acting out situations (role playing)
- guessing and checking.
- looking for patterns.
- utilizing charts, tables, or graphs

Students will use calculators when working with problem solving activities.

II. Mathematics as Communication

The students will communicate an understanding of mathematics concretely, verbally, and in a written form. The student will realize that representing, discussing, reading, writing, and listening to mathematics are a vital part of learning and using mathematics.

IV. Mathematical Connections

The students will make connections between conceptual and procedural knowledge and between the topics of mathematics and other curriculum areas. The use of concrete and real-life experiences to develop concepts will assist the students in understanding the procedure and processes.

V. Estimation

The students will show knowledge of estimation strategies. Students are to apply estimation in working with measurement, area, problem solving, and computation.

* Standards are numbered to be consistent with the NCTM Standards

VI. Number Sense and Numeration

The students will show an understanding of numeration systems by relating counting, grouping, and place value concepts. Real-life situations, concrete materials, and pictures will be used to develop this understanding.

VII. Concepts of Whole Number Operations

The students will demonstrate an understanding of the operations of addition, subtraction, multiplication, and division in concrete, pictorial, and computational forms. The students will relate these operations to the solution of real-life problems.

VIII. Whole Number Computation

The students will have quick recall of the basic addition, subtraction, multiplication, and division facts. The students will be able to add and subtract whole numbers, multiply a two-digit number by a one-digit number and divide a two-digit number by a one digit number. Increased emphasis will be placed upon the use of mental computation, reasonableness of results and the use of calculators for lengthy computation.

IX. Geometry and Spatial Sense

The students will demonstrate spatial sense and identify/name and draw/sketch geometric shapes, congruent figures, points, lines, and line segments.

X. Measurement

The students will demonstrate an understanding of the concepts of length, capacity, weight, area, volume, time, temperature and angle. The students will also demonstrate an understanding of the process of measuring and concepts related to units of measurement.

The use of concrete instructional materials applied to real-life situations is essential for student understanding of measurement concepts. Students must be involved in a variety of measuring activities. These activities should include estimation strategies and applications to other curriculum areas.

XI. **Statistics and Probability**

The students will collect, organize, and describe data using words and pictorial, bar and line graphs. The students will construct, read, and interpret displays of data as well as formulate and solve problems that involve collecting and analyzing data. The students will explore concepts of chance.

XII. **Fractions and Decimals**

The students will demonstrate an understanding of the concepts of fractions, mixed numbers, and decimals as parts of sets and regions in concrete, pictorial, and computational forms.

Models will be used to:

- develop concepts and number sense of fractions, mixed numbers and decimals.
- relate fractions to decimals.
- explore operations of fractions and decimals.

XIII. **Patterns and Relationships**

The students will recognize, describe, extend and create a wide variety of patterns and be able to use patterns to represent and describe mathematical relationships.

MATHEMATICS STANDARDS
Grades 5-8

On completion of mathematics studies in grades 5-8, the students will demonstrate mathematics skills in the following areas according to these standards:

I. ***Mathematics as Problem Solving***

The students will apply problem-solving strategies to solve routine and non-routine problems, both numerical and non-numerical. The student will verify and interpret solutions to problems and be able to extend problem solutions to new situations.

II. *Mathematics as Communication*

The students will develop skills in using mathematical language as a means of communicating ideas in a variety of ways. The students will understand the role of mathematical definitions and will use symbols to express mathematical ideas.

III. *Mathematics as Reasoning*

The students will recognize and apply deductive and inductive reasoning in mathematical and real-world contexts. The students will formulate and validate conjectures and arguments.

IV. *Mathematical Connections*

The students will make appropriate connections in order to see mathematics as an integrated whole. The students will recognize the historical role of mathematics and will use mathematics to model situations in other disciplines.

V. *Number and Number Relationships*

The students will use numbers and number relationships in a variety of forms while developing an understanding of the concepts and patterns of number systems.

VI. *Number Systems and Number Theory*

The students will use number systems and number theory in a variety of forms while developing an understanding of concepts and patterns. The student will perform operations with various forms of numbers and will apply number theory concepts including the unique roles of 0 and 1 as numbers.

VII. *Computation and Estimation*

The students will understand and apply techniques of computation and estimation using the rational number system.

VIII. *Patterns and Functions*

The student will recognize, describe, explore and create patterns using mathematics. The students will analyze and use functional relations.

IX. *Algebra*

The students will use fundamental algebraic concepts including the uses of variables and variable expressions. The students will solve simple linear equations and inequalities.

X. *Statistics*

The students will apply statistical techniques in real-world situations. The students will collect, organize, describe, and use techniques of statistical analysis to draw inferences from real-world data.

XI. *Probability*

The students will apply principles of probability to mathematical and real-world situations. The students will compare experimental results and mathematical expectations and will apply probability in the real world to predict outcomes and evaluate results.

XII. *Geometry*

The students will use geometric concepts and relations and apply them in solving problems. The students will identify, describe, compare and classify geometric figures. The student will visualize, represent, and apply transformations to geometric figures. The student will apply geometric properties and relationships in problem solving.

XIII. *Measurement*

The students will estimate and measure using appropriate measuring instruments and units when solving problems. The students will understand the structure and use of a measurement system.

MATHEMATICS STANDARDS
Grades 9-12

Upon completion of high school mathematics, the students will demonstrate mathematics skills in the following areas according to these standards:

I. ***Mathematics as Problem Solving***

The students will apply integrated mathematical problem-solving strategies to problems both within and outside mathematics.

II. ***Mathematics as Communication***

The students will use the language and symbols of mathematics to communicate mathematics ideas.

III. ***Mathematics as Reasoning***

The students will use logical reasoning skills in mathematical contexts and real-world situations.

IV. ***Mathematical Connections***

The students will recognize mathematics as an integrated whole and make connections among mathematical topics, between mathematics and other disciplines, and between mathematics and the real world.

V. ***Algebra***

The students will use algebraic concepts, symbols, and skills to analyze, represent, and solve a variety of problems.

VI. ***Functions***

The students will understand the important mathematical role which functions play and will use them to model and solve real-world problems.

VII & VIII. *Geometry*

The students will learn the fundamentals of geometry from several perspectives. The students will select the appropriate form or forms to model situations, solve problems, and argue logically.

IX. *Trigonometry*

The students will understand and apply common trigonometric ratios and functions. In addition, the college-intending student will understand the connections between trigonometry, geometry, and algebra.

X. *Statistics*

The students will use statistical methods to represent and analyze real-world data, and to design experiments for investigating problems.

XI. *Probability*

The students will use both theoretical and empirical probability to represent and solve problems involving uncertainty or chance.

XII. *Discrete Math*

The students will use elements of discrete mathematics to model and solve real-world problems.

XIII. *Conceptual Underpinnings of Calculus*

The students will explore informal concepts of calculus and apply these concepts both numerically and graphically.

XIV. *Mathematical Structure*

The students will understand that mathematical systems, whether numerical, geometric, or algebraic exist within frameworks that are compatible and complementary.

Strategic Directions for Kansas Education

The Kansas State Board of Education is charged with the general supervision of public education and other educational interests in the state. While clearly acknowledging the role and importance of local control, the State Board of Education has the responsibility to provide direction and leadership for the structuring of all state educational institutions under its jurisdiction.

The beginning place for determining the mission for the Kansas State Board of Education is the assumption that all Kansas citizens must be involved in their own learning and the learning of others. It is the combined effort of family, school, and community that makes possible the development of a high quality of life. It is the parent who is the first "teacher" of children. As we grow older, we learn that the school, the workplace, and the community support our lifelong learning and our training and retraining. The Board recognizes the responsibility it holds for Kansas educational systems and promoting quality education programs. The mission for Kansas education is:

To prepare each person with the living, learning, and working skills and values necessary for caring, productive, and fulfilling participation in our evolving, global society.

We believe that the strategic directions for the structuring of Kansas education must be organized to:

- create learning communities
- develop and extend resources for parenting programs and early childhood education
- expand learner-outcome curriculum and learner-focused instruction
- provide inclusive learning environments
- strengthen involvement of business and industry in education
- provide quality staff and organizational development.

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